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*Reprinted from the New York Medical Journal
for November 28, 1896.*

A NOTE UPON
SERUM DIAGNOSIS BY MEANS OF DRIED BLOOD
SAMPLES IN (EXPERIMENTAL) CHOLERA.
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THE announcement made by Achard and Bensaude (*La Presse médicale*, September 26, 1896; abstract in *New York Medical Journal*, November 7, 1896) that they had successfully employed serum diagnosis in all of eleven cases of cholera, has led us to publish briefly the result of some experiments we have been making to see if drops of dried cholera blood form a suitable material for obtaining and testing the serum reaction. Not having the blood of cholera patients at our disposal, we experimented on rapidly immunized guinea-pigs.

We find that when the blood serum of an animal gives a good reaction in the fresh state the reaction may also be obtained by moistening a drop of the dried blood with water and mixing it with an actively motile cholera culture.

The cholera culture employed was one isolated by Dunham in 1892, from a case in New York and trans-

mitted to the laboratory in 1893 by Professor Welch, of Johns Hopkins. This was brought up to a high degree of virulence by passing it through a series of guinea-pigs until intraperitoneal injection killed in ten hours, and subcutaneous injection in twenty hours.

From a tenth to half a loopful of sterilized suspensions of a twenty-hour growth in agar was injected beneath the skin or into the peritonæum of guinea-pigs, and was followed by prompt loss of weight. The larger doses usually produced promptly the characteristic blood reaction in the course of a few days, varying in intensity with the different animals.

The reaction was found well developed in one case within three days and a half after the dose. Here the animal died from a secondary infection. The dried blood, first examined two days after the animal's death, gave the reaction to perfection, extensive clumping taking place in the momentary interval between mixing the drop of dried-blood solution with the culture and bringing it under the microscope. Positive results were obtained in the cases of two other guinea-pigs inoculated on the same day. Check examinations of healthy animals and of these inoculated with very minute doses gave negative results.

From this it appears that the sending of samples of dried blood is likely to suffice for the serum test. We hope before long to receive samples of dried cholera blood sent us under conditions which will be such as to give the method a practical test.

The fact that Achard and Bensaude found the reaction present even as early as the first day (in non-fatal cases) should make it invaluable in the diagnosis of cholera.

We have been surprised to find the ease with which the typical serum reaction, though not complete immunity, could be induced in animals by even a single dose of typhoid and cholera culture.

A preliminary protective dose is not strictly necessary, but it guards against loss of the animals by an accidental overdose.

We have followed Pfeiffer's recommendation to wait until the loss of weight of the animal is made up before repeating the dose.